MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2018 / 2019

PPS 0335 – PROBLEM SOLVING AND PROGRAMMING

(Foundation in Information Technology)

30 MAY 2019
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 3 pages (excluding the cover page) with 5 questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

Instructions: Attempt **ALL** questions. Write your answers in the Answer Booklet.

QUESTION 1 [10 Marks]

a. Explain in brief **TWO (2)** different types of problems and give **ONE (1)** example for each type of the problems mentioned.

(4 marks)

b. List **SIX (6)** steps of problem solving process.

(3 marks)

c. What is an algorithm?

(1 mark)

d. Write an algorithm for a program that accept marks of 10 students, calculate the total marks and the average marks. The program then displays results on the terminal.

(2 marks)

QUESTION 2 [10 Marks]

a. Variables and constants are both identifiers. Explain the difference between them.

(2 marks)

b. Listed below are incorrect variable names. What is wrong with these variables names?

i. *2019MelakaUnited*
ii. *double*
iii. *x^y*
iv. *kstark vs thenos*

(2 marks)

c. Explain briefly the **FOUR (4)** data types in C++ language.

(2 marks)

d. Suppose a, b and c are integer variables that have been assigned the values a=8, b=3, c=-5. Determine the result for each of the following arithmetic expressions. Show computation steps:

i. 3*(a-c)+2*a
ii. b%3
iii. b/a+c*a
iv. (a*c)%b

(4 marks)

Continued...

QUESTION 3 [10 Marks]

a. Construct Problem Analysis Chart(PAC) to find the sum of S, the average A and the product of three integers X, Y and Z. Assumed all integers are obtained from the user.

(4 marks)

b. Construct Input Processing Output(IPO) to compute the volume of a right circular cylinder. The input data will be given by the user. Hint: volume = πr^2h

(3 marks)

c. What is a module? Why is module used in programs?

(2 marks)

d. A program has been tested and all errors are corrected. What type of errors could still occur when the program is executed?

(1 mark)

QUESTION 4 [10 Marks]

a. Suppose you want to deposit a certain amount of money into savings account, and then leave alone to draw interest for the next 10 years. At the end of 10 years you would like to have RM10,000 in the account. Write an algorithm and pseudocode to find out how much do you need to deposit today to make it happen. You can use the following formula:
$P = F/(1+r)^n$

P is the present value, or amount that you deposit today
F is the future value that you want in the account.
r is the annual interest
n is the number of years that you plan to let the money sit in the account.

(6 marks)

b. Draw a flowchart for the problem in Question 4(a) above.

(2 marks)

c. Describe why sometimes case logic structure would be used instead of decision logic structure in solving problem.

(2 marks)

Continued...

QUESTION 5 [10 Marks]

a. KuatBaca is an online book club. It awards points to its customer based on the number of books purchased each month. Points are awarded as follows (refer **Table 1**).

Table 1

Books Purchased	Points Earned
0	0
1	10
2	20
3	30
4 or more	60

Draw a flowchart that prompts the user to enter the number of books purchased this month and displays the number of points awarded.

(5 marks)

b. Suppose we want to display all the digits 101,91,81,...,-89,-99,-109 in descending order. Use the repetition control structure while in order to write a pseudocode.

(3 marks)

c. In looping logic structure, what is the difference between incrementing and accumulating task?

(2 marks)

End of Paper